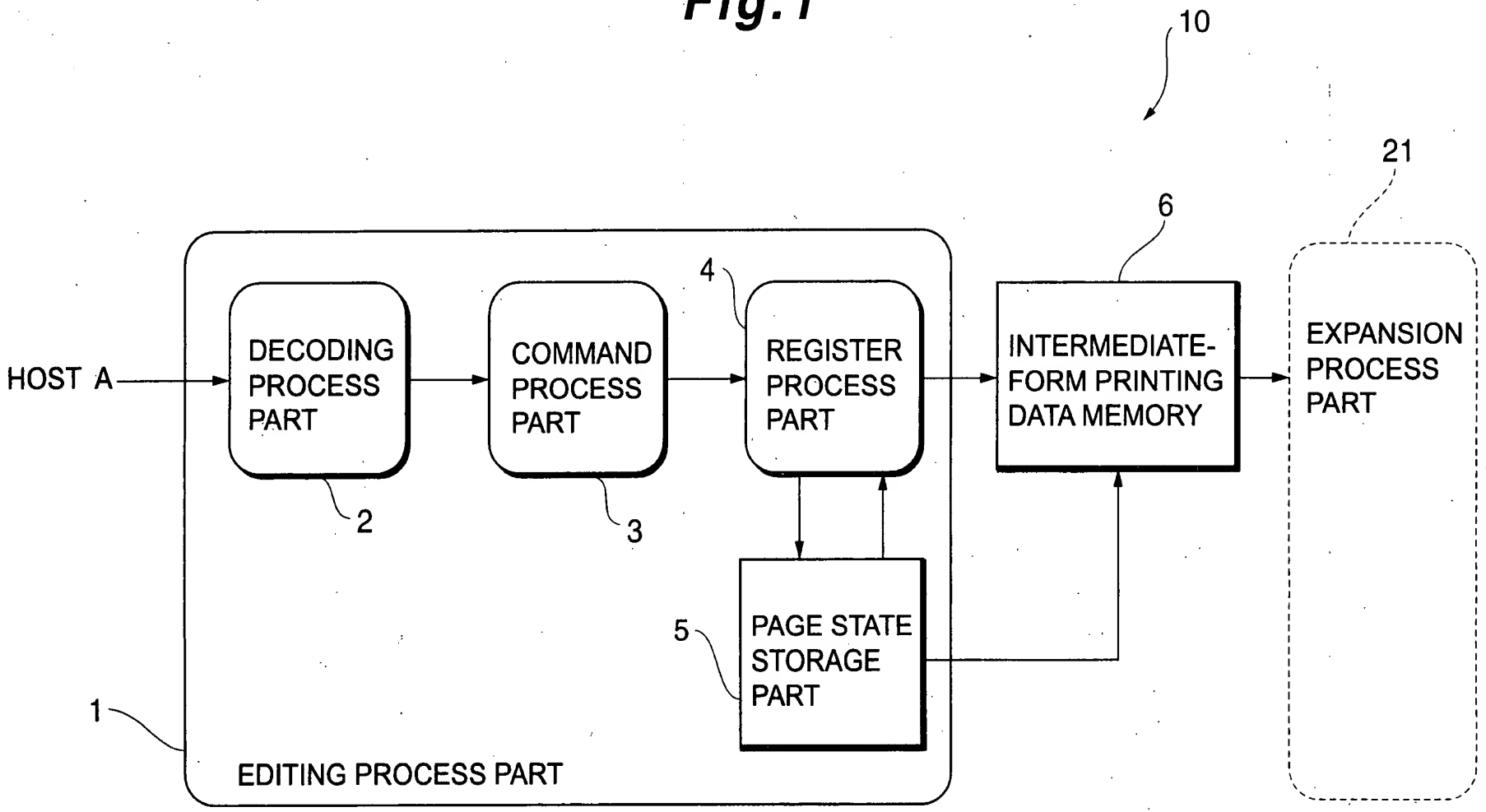
Fig.1



DRAFTSMAN
CLASS
SUBCLASS
JC542 U.S. PTO
09/458605
12/10/99

paper # 8

UNCLASS

Fig.2

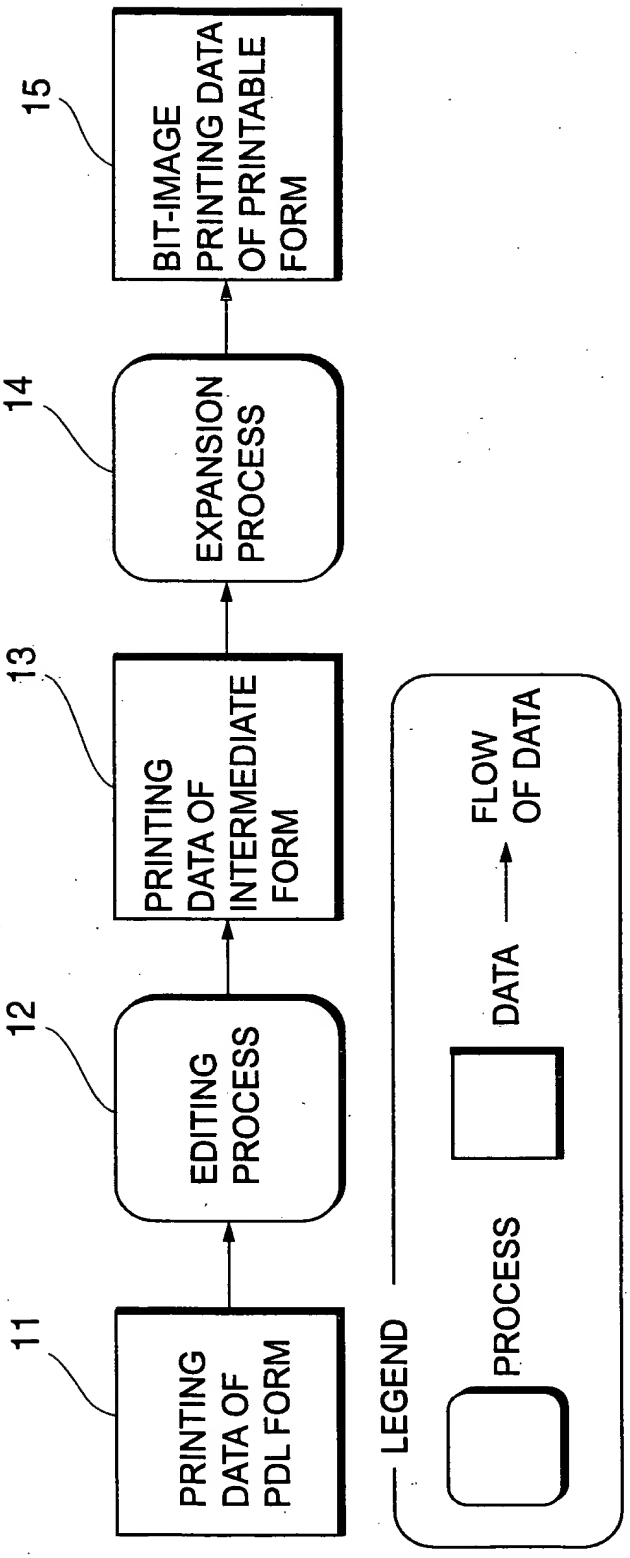


Fig.3

	BINARY(1BIT)	MULTI BINARY(8BITS)
MONOCHROME	1	8
COLOR(CMYK,4COLORS)	4	32

DIAGRAM FOR EXPLAINING BITS IN MONOCHROME AND COLOR(CMYK,4COLORS)PRINTING

Fig.4(a)

CONDITIONS GIVING RISE TO STATE TRANSITION ACCORDING TO CHARACTERISTICS OF DATA

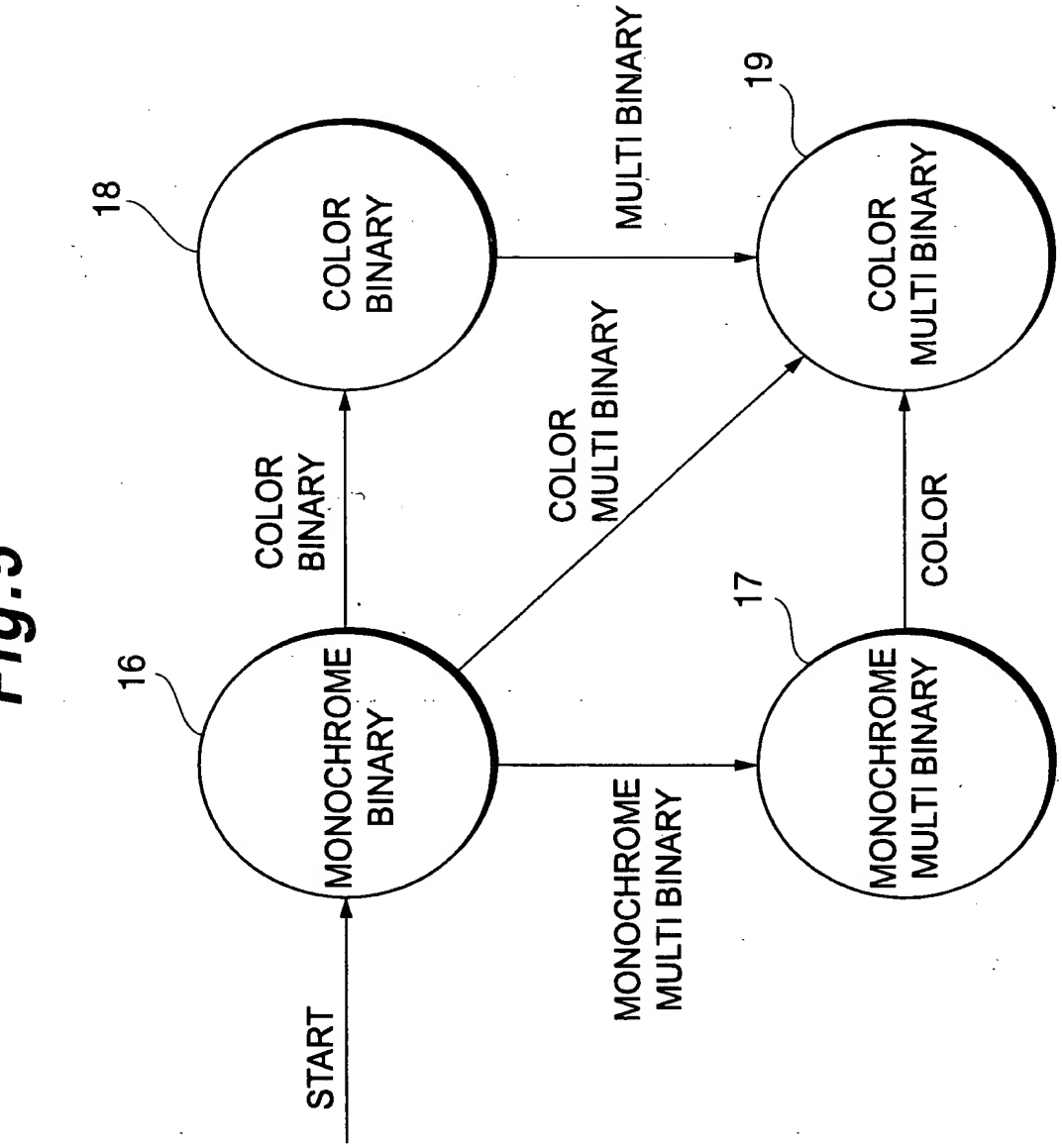
	CHARACTERISTICS	CONDITIONS FOR STATE TRANSITION
(1)	DATA SPECIFIES SHAPE ONLY	DATA INCLUDES NO INFORMATION ABOUT COLOR AND GRADATION, SO NO STATE TRANSITION OCCURS. STATE TRANSITION NEED NOT BE CHECKED.
(2)	DATA SPECIFIES COLOR ONLY.	IF COLOR IS SPECIFIED AS BLACK, COLOR INFORMATION IS NOT INCLUDED. SO, STATE TRANSITION NEED NOT OCCUR. IF COLOR COMPONENTS(E. G. CMY) ARE SAME, THAT IS, IF COLOR IS A GRAY TONE, STATE CHANGES TO MULTI BINALY BUT NEED NOT CHANGE TO COLOR. IN OTHER CASES, STATE CHANGES TO COLOR MULTI BINARY.
(3)	DATA SPECIFIES COLOR AND SHAPE.	IF COLOR SPACE IS COLOR, STATE CHANGES TO COLOR, IF NUMBER OF BITS IS MORE THAN 1, STATE CHANGES TO COLOR MULTI BINARY.
(4)	DATA SPECIFIES NO COLOR NOR SHAPE.	IF NEITHER COLOR NOR SHAPE IS SPECIFIED, DATA INCLUDES NO INFORMATION ABOUT COLOR AND GRADATION, SO NO STATE TRANSITION OCCUR. STATE TRANSITION NEED NOT BE CHECKED.

Fig.4(b)

COMPONENT	CHARACTERISTICS	REMARKS
DRAWING DATA	SPECIFIES SHAPE ONLY	CHARACTER, GRAPHIC FORM, ETC.
	SPECIFIES COLOR AND SHAPE	IMAGE ETC.
PATTERN	SPECIFIES COLOR ONLY	PEN COLOR, ETC.
	SPECIFIES SHAPE ONLY	TILING PATTERN, ETC.
	SPECIFIES COLOR AND SHAPE	TILING PATTERN, ETC.
EXPANSION RULE	NO COLOR, NO SHAPE	

DIAGRAM FOR EXPLAINING PAGE STATE

Fig.5


START
MONOCHROME BINARY
16
MONOCHROME MULTI BINARY
MONOCHROME MULTI BINARY
17
COLOR
COLOR BINARY
COLOR BINARY
18
COLOR MULTI BINARY
COLOR MULTI BINARY
MULTI BINARY
19
COLOR MULTI BINARY

BY
CLASS

Fig.6

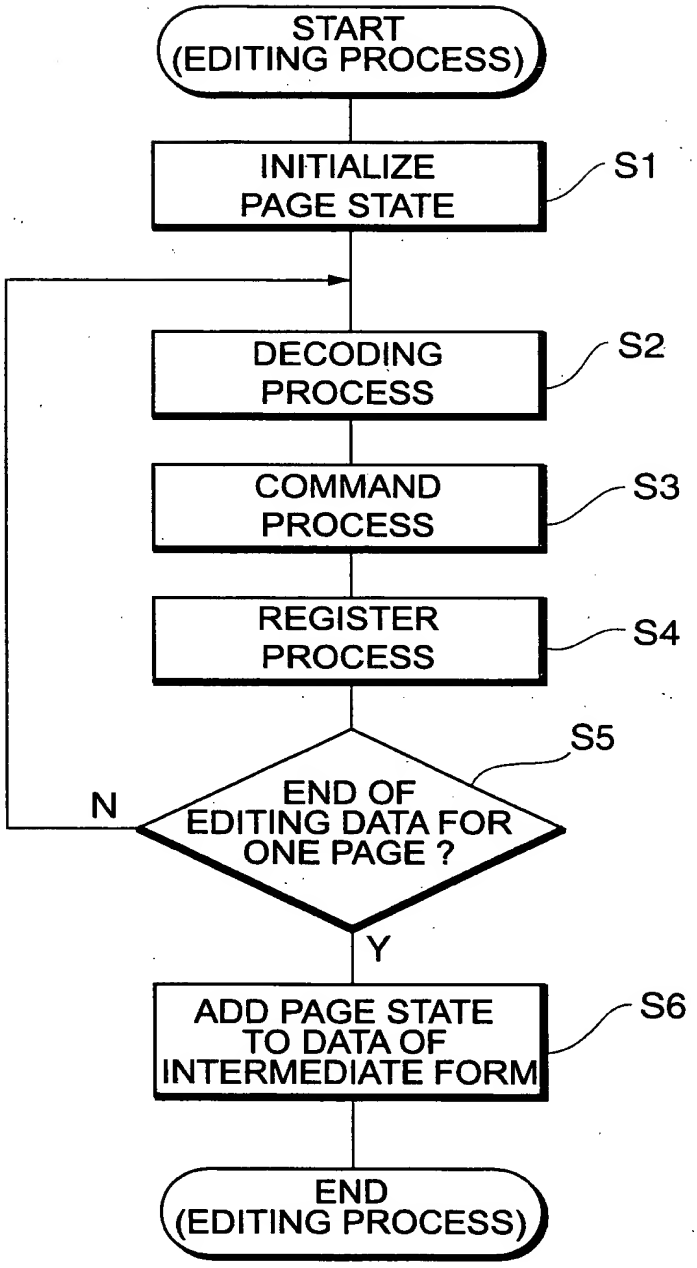


Fig.7

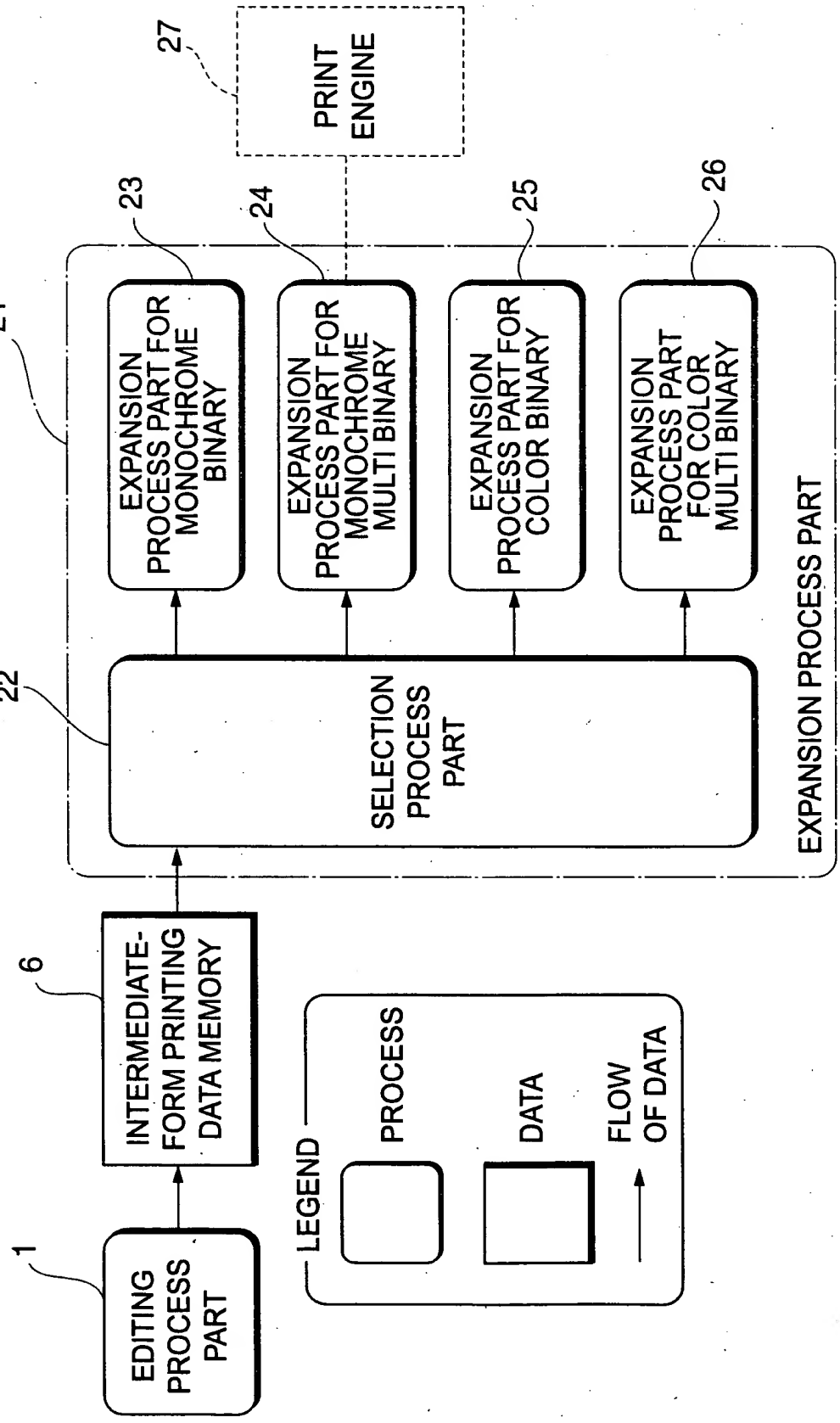

10
21
22
23
24
25
26
27
EXPANSION PROCESS PART
SELECTION PROCESS PART
EXPANSION PROCESS PART FOR MONOCHROME BINARY
EXPANSION PROCESS PART FOR MONOCHROME MULTI BINARY
EXPANSION PROCESS PART FOR COLOR BINARY
EXPANSION PROCESS PART FOR COLOR MULTI BINARY
PRINT ENGINE
6
INTERMEDIATE-FORM PRINTING DATA MEMORY
1
EDITING PROCESS PART
LEGEND
PROCESS
DATA
FLOW OF DATA

Fig.8

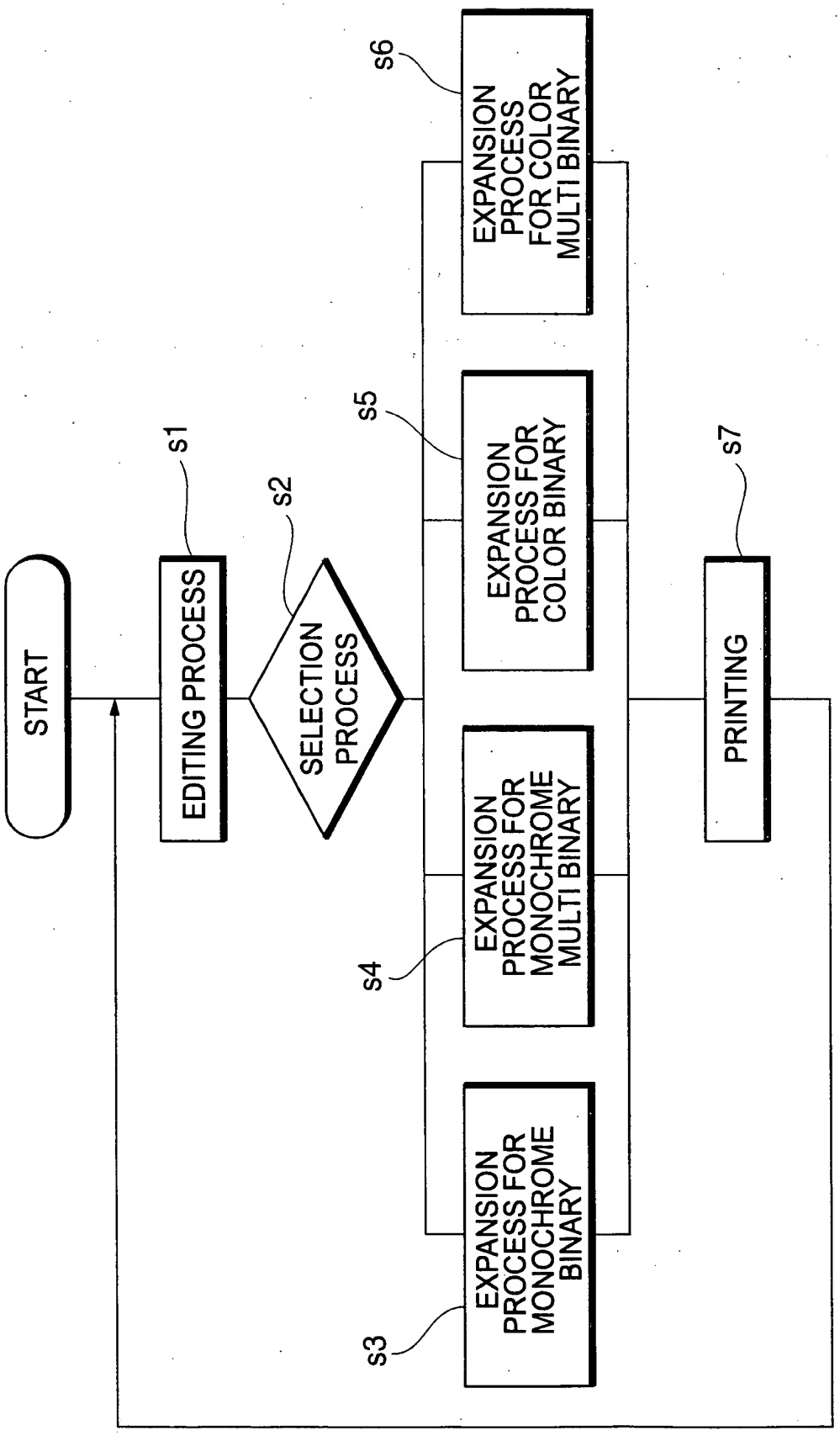
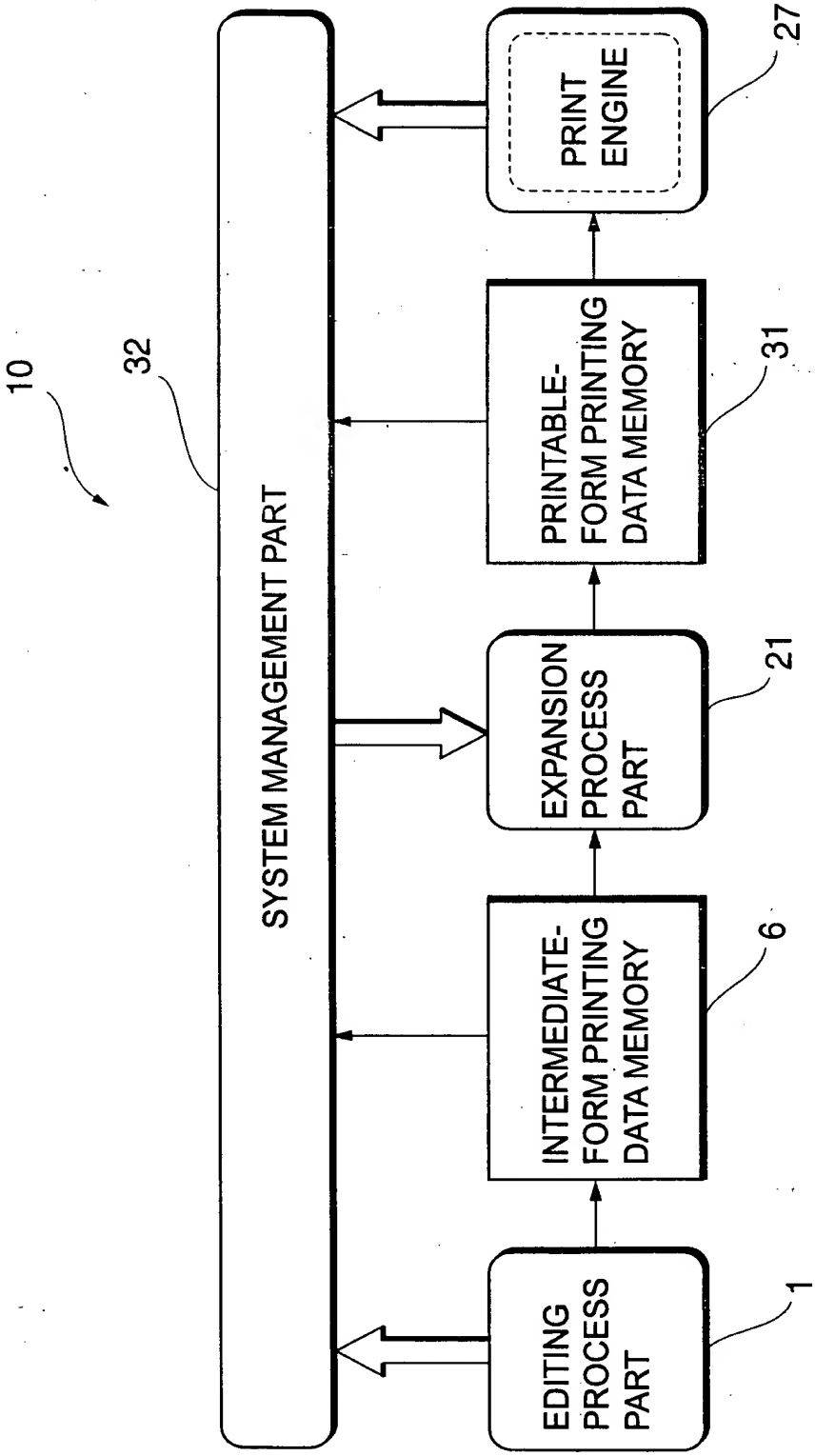

START
EDITING PROCESS
s1
SELECTION PROCESS
s2
EXPANSION PROCESS FOR MONOCHROME BINARY
s3
EXPANSION PROCESS FOR MONOCHROME MULTI BINARY
s4
EXPANSION PROCESS FOR COLOR BINARY
s5
EXPANSION PROCESS FOR COLOR MULTI BINARY
s6
PRINTING
s7

Fig.9

ORDER	PAGE	SHEET OF PAPER	FRONT/REVERSE
1	2	1ST	REVERSE
2	4	2ND	REVERSE
3	1	1ST	FRONT
4	6	3RD	REVERSE
5	3	2ND	FRONT
6	8	4TH	REVERSE
7	5	3RD	FRONT

DIAGRAM FOR EXPLAINING PRINTING ON BOTH SIDES

Fig.10


10
32
SYSTEM MANAGEMENT PART
EDITING PROCESS PART
1
INTERMEDIATE-FORM PRINTING DATA MEMORY
6
EXPANSION PROCESS PART
21
PRINTABLE-FORM PRINTING DATA MEMORY
31
PRINT ENGINE
27

BY
DRAFTSM

Fig.11

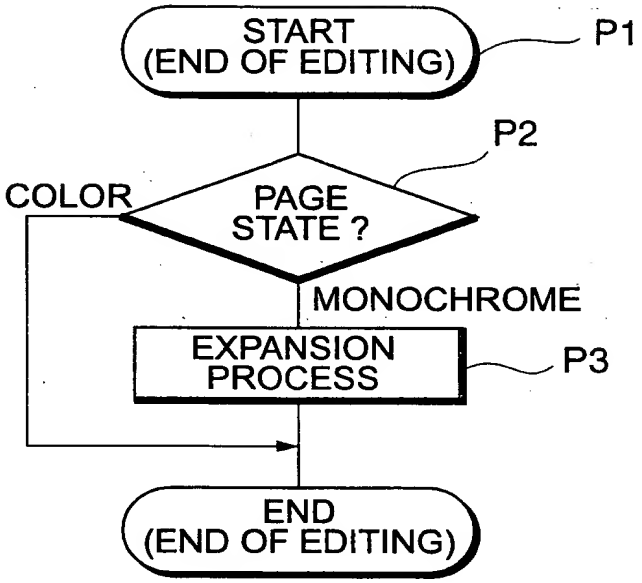


Fig.12

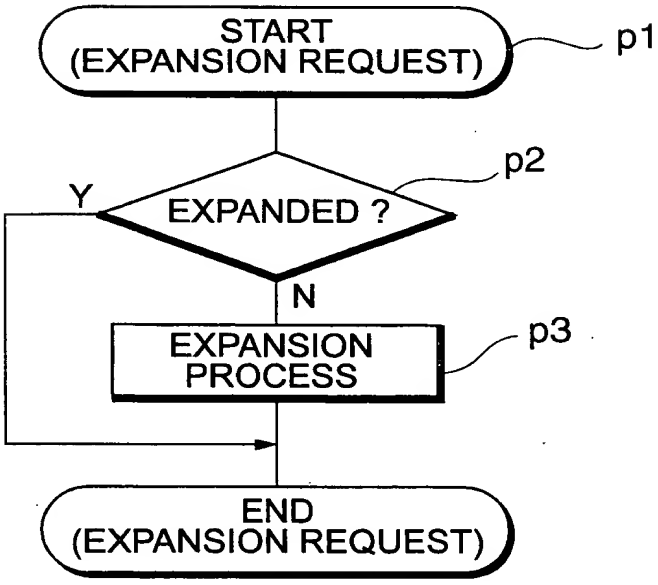
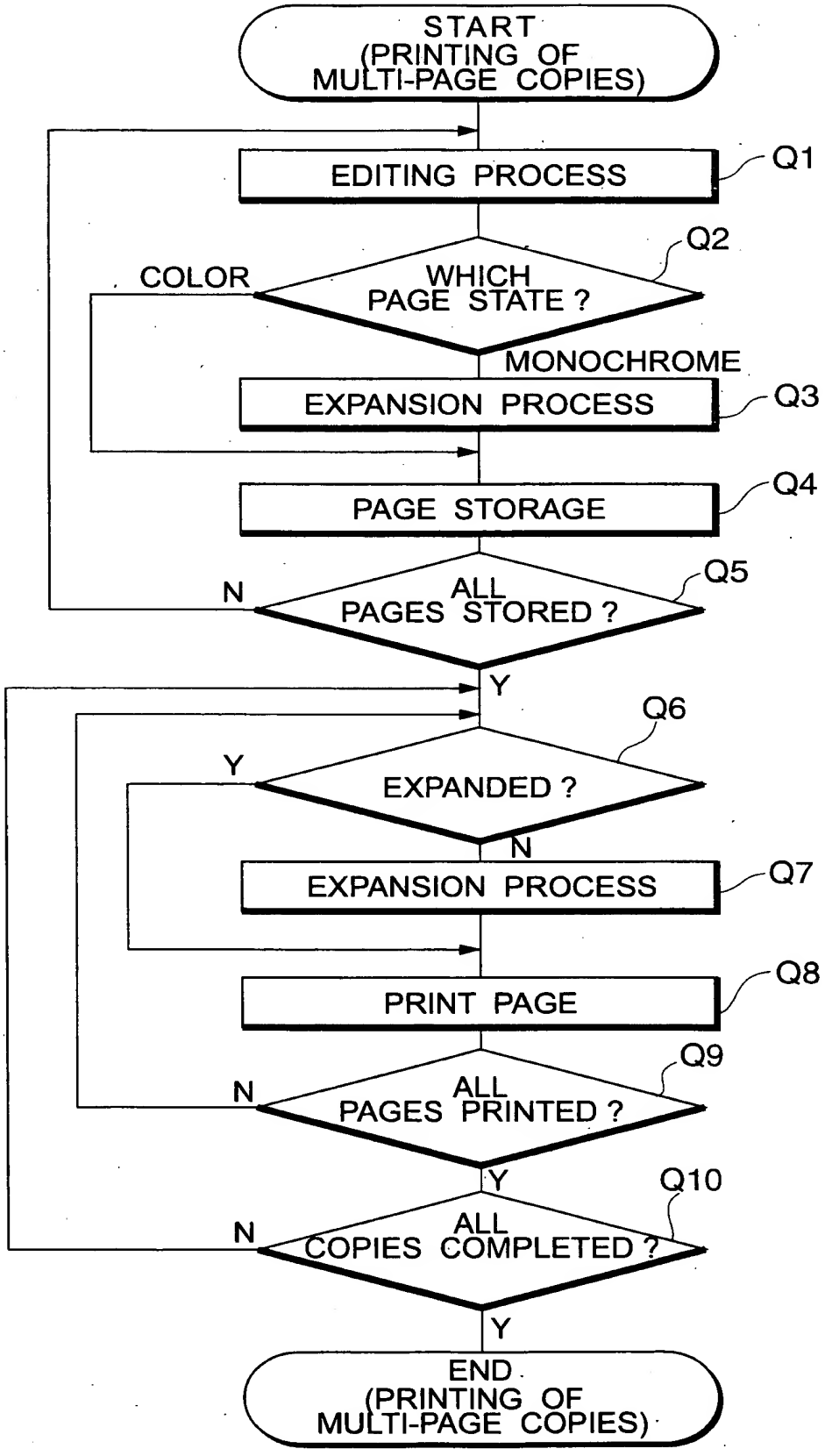


Fig.13


START
(PRINTING OF
MULTI-PAGE COPIES)
EDITING PROCESS
Q1
WHICH
PAGE STATE ?
Q2
COLOR
MONOCHROME
EXPANSION PROCESS
Q3
PAGE STORAGE
Q4
ALL
PAGES STORED ?
Q5
N
Y
EXPANDED ?
Q6
Y
N
EXPANSION PROCESS
Q7
PRINT PAGE
Q8
ALL
PAGES PRINTED ?
Q9
N
Y
ALL
COPIES COMPLETED ?
Q10
N
Y
END
(PRINTING OF
MULTI-PAGE COPIES)

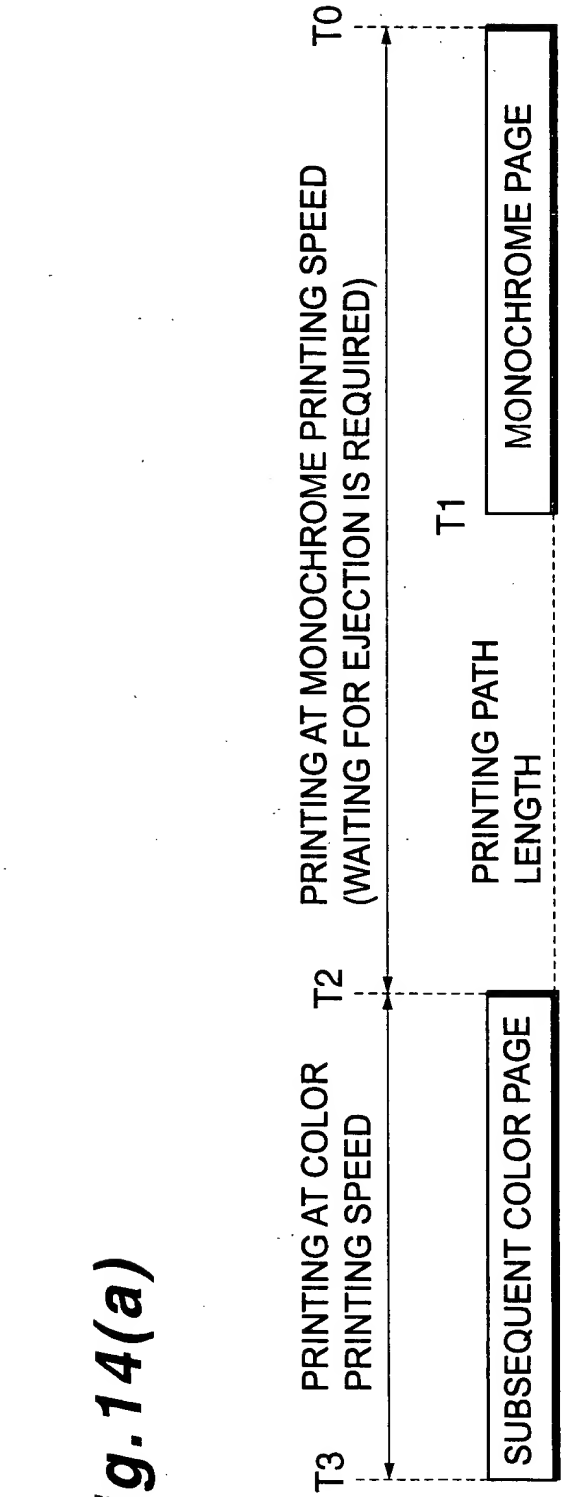


Fig.14(a)

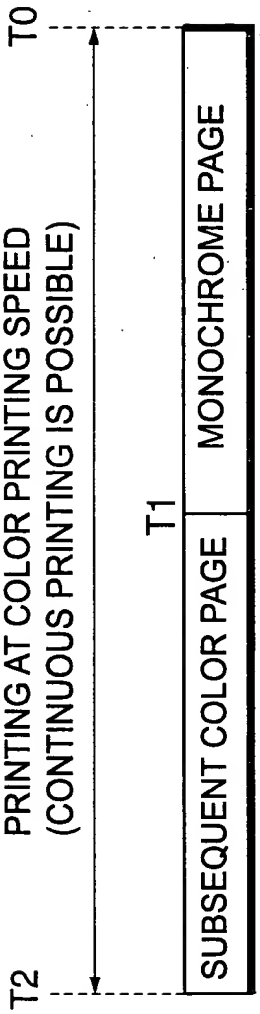
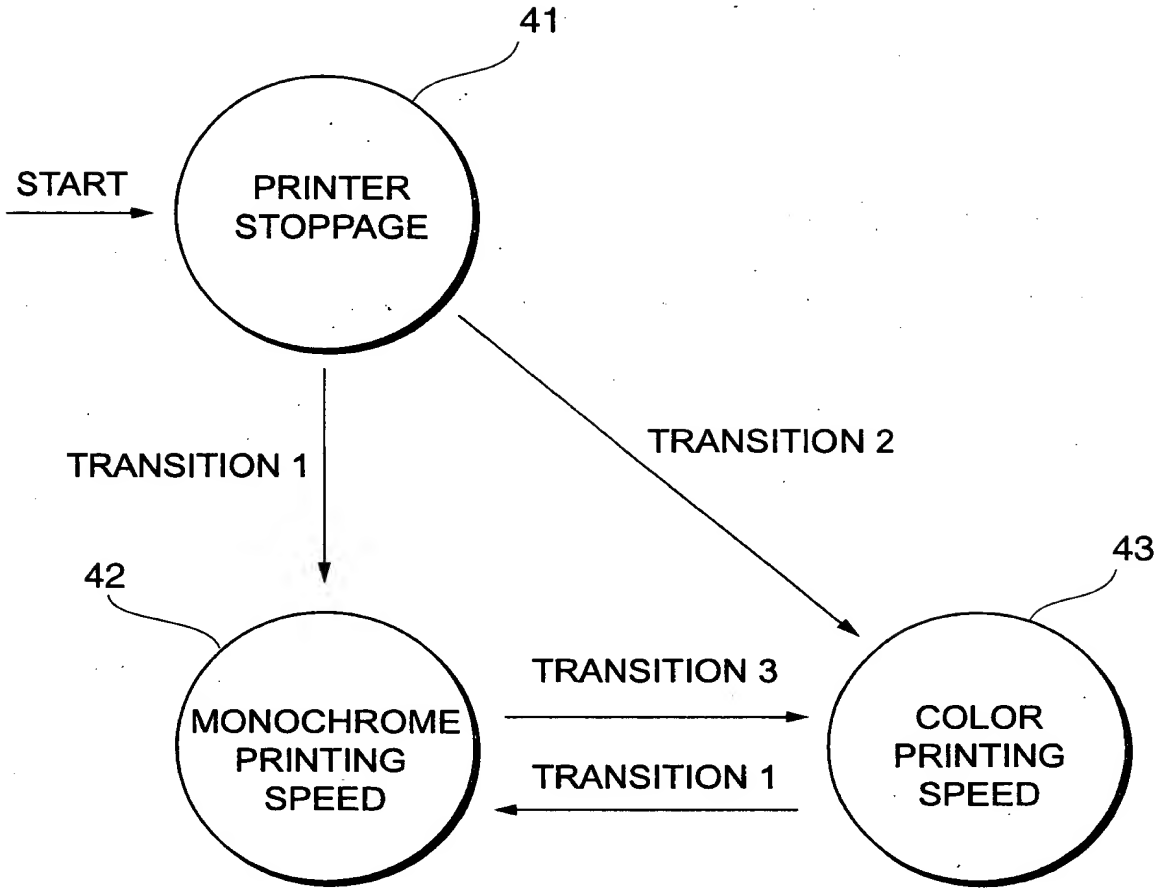


Fig.14(b)

Fig.15



TRANSITION 1	PAGE STATE THIS TIME IS MONOCHROME AND NEXT PAGE STATE IS MONOCHROME
TRANSITION 2	PAGE STATE THIS TIME IS COLOR AND NEXT PAGE STATE IS COLOR
TRANSITION 3	PAGE STATE THIS TIME IS COLOR

Fig.16

CURRENT PRINTING SPEED	PAGE STATE THIS TIME		NEXT PAGE STATE	PRINTING SPEED THIS TIME	TRANSITION MODE
PRINTER STOPPAGE 41	MONOCHROME	(1)	MONOCHROME	MONOCHROME	1
		(2)	COLOR	COLOR	2
	COLOR	(3)	MONOCHROME	COLOR	2
		(4)	COLOR	COLOR	2
MONOCHROME 42	MONOCHROME	(5)	MONOCHROME	MONOCHROME	NO TRANSITION
		(6)	COLOR	MONOCHROME	NO TRANSITION
	COLOR	(7)	MONOCHROME	COLOR	3
		(8)	COLOR	COLOR	3
COLOR 43	MONOCHROME	(9)	MONOCHROME	MONOCHROME	1
		(10)	COLOR	COLOR	NO TRANSITION
	COLOR	(11)	MONOCHROME	COLOR	NO TRANSITION
		(12)	COLOR	COLOR	NO TRANSITION

DIAGRAM FOR EXPLAINING DECISION ON PRINTING SPEED

Fig.17

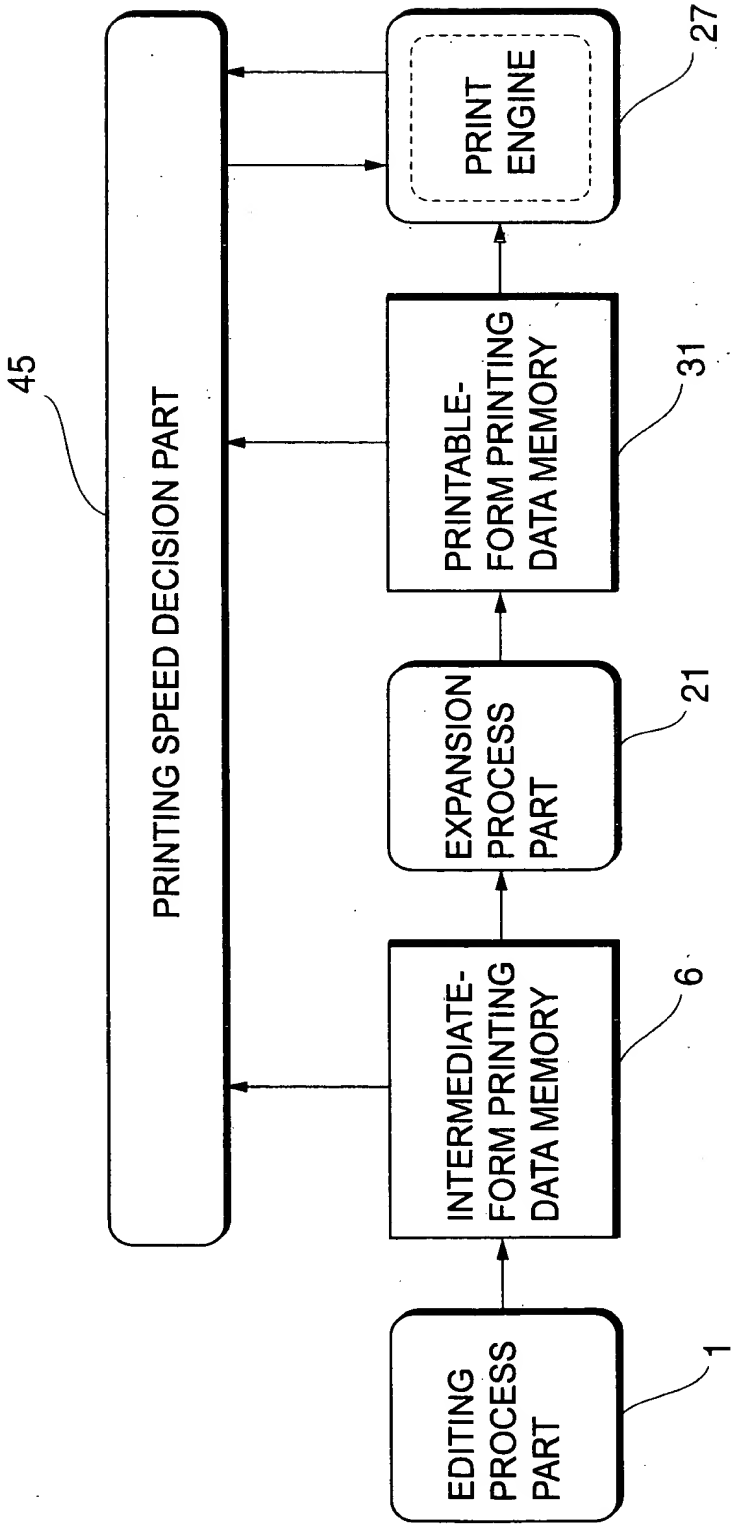
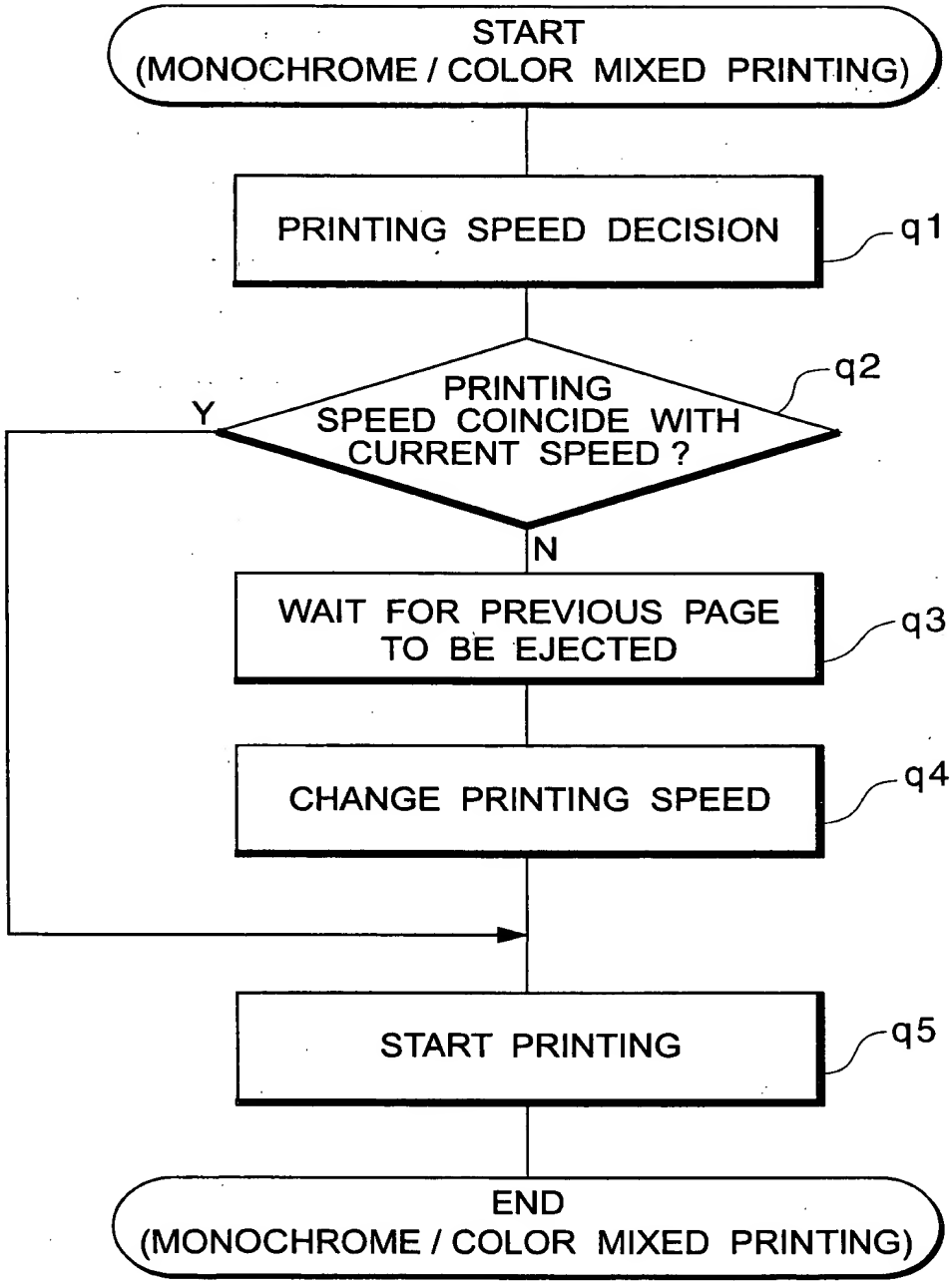

EDITING PROCESS PART
1
INTERMEDIATE-FORM PRINTING DATA MEMORY
6
EXPANSION PROCESS PART
21
PRINTABLE-FORM PRINTING DATA MEMORY
31
PRINT ENGINE
27
PRINTING SPEED DECISION PART
45

Fig.18


START
(MONOCHROME / COLOR MIXED PRINTING)
PRINTING SPEED DECISION
q1
PRINTING SPEED COINCIDE WITH CURRENT SPEED ?
q2
Y
N
WAIT FOR PREVIOUS PAGE TO BE EJECTED
q3
CHANGE PRINTING SPEED
q4
START PRINTING
q5
END
(MONOCHROME / COLOR MIXED PRINTING)